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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,799	02/13/2002	Li-Jie Jin	10007861-1	7145
7590	02/07/2006		EXAMINER	
HEWLETT-PACKARD COMPANY Intellectual Property Administration P.O. Box 272400 Fort Collins, CO 80527-2400			ALI, SYED J	
			ART UNIT	PAPER NUMBER
			2195	

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/074,799	JIN ET AL.
	Examiner	Art Unit
	Syed J. Ali	2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 31 October 2005.

2a) This action is FINAL.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-25 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1,2,5-10,13-19,22 and 23 is/are rejected.

7) Claim(s) 3,4,11,12,20,21,24 and 25 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

1. This office action is in response to the amendment filed October 31, 2005. Claims 1-25 are presented for examination.
2. The text of those sections of Title 35, U.S. code not included in this office action can be found in a prior office action.

***Claim Rejections - 35 USC § 102***

3. **Claims 1-2, 5-8, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Ferguson et al. (USPN 5,504,894) (hereinafter Ferguson).**
4. As per claim 1, Ferguson teaches the invention as claimed, including a method of distributing workload in a workflow management system comprising the steps of:
  - during a calibration mode, executing plural instantiations of a test process to identify load index parameters (col. 6 line 65 - col. 7 line 18);
  - calculating a load index based on the load index parameters for each engine of the workflow management system, wherein each load index reflects a workload of its associated engine, wherein the load index corresponds to an average activity execution delay (col. 6 lines 16-64); and
  - distributing workload across the plurality of engines in response to the load indices in a load sensitive mode (col. 6 lines 37-45).

5. As per claim 2, Ferguson teaches the invention as claimed, including the method of claim 1, wherein identifying the load index parameters comprises identifying a single engine nominal activity execution delay (C) when no concurrent activities are executing (col. 10 lines 45-55) and an activity execution latency factor ( $\lambda$ ), wherein  $\lambda$  is a function of a number of concurrently executing activities (col. 6 lines 7-35).
6. As per claim 5, Ferguson teaches the invention as claimed, including the method of claim 1 wherein distributing the workload comprises re-directing incoming process requests to another engine (col. 6 lines 37-45).
7. As per claim 6, Ferguson teaches the invention as claimed, including the method of claim 1 wherein distributing the workload comprises re-distributing queued processes to another engine (col. 7 line 65 - col. 8 line 24).
8. As per claims 7-8, Ferguson teaches the invention as claimed, including the method of claim 1 wherein distributing the workload comprises identifying and prioritizing a source engine for distributing workload from based on a maximum differential workload (col. 5 lines 43-47; col. 6 lines 36-45).
9. As per claim 22, Ferguson teaches the invention as claimed, including the method of claim 1, further comprising providing a definition of activities in the test process such that for each activity, a resource execution time is much less than an engine execution time, the resource

execution time representing an execution time of a resource to perform work represented by the respective activity (col. 9 line 66 - col. 10 line 8), and the engine execution time representing an execution time of the respective engine in performing the activity (col. 9 lines 55-65).

*Claim Rejections - 35 USC § 103*

10. **Claims 9-10, 13-19, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferguson.**

11. As per claim 9, Ferguson teaches the invention as claimed, including a method of distributing workload in a workflow management system comprising the steps of:

- a) calculating a load index for each engine of the workflow management system, wherein each load index reflects a workload of its associated engine (col. 6 lines 16-64);
- b) operating in a load insensitive workload distribution mode for distributing processes until a maximum differential load index exceeds a pre-determined threshold (col. 6 lines 16-64; col. 7 lines 15-45); and
- c) operating in a load sensitive workload distribution mode for distributing processes until all processes have completed execution once the maximum differential load index exceeds the pre-determined threshold (col. 6 lines 16-64; col. 7 lines 15-45).

12. Ferguson does not explicitly distinguish between operating in a load-sensitive and load-insensitive manner, yet it would have been obvious to a person having ordinary skill in the art that Ferguson operates the scheduler in a manner that only changes the routing decisions when workload burden demands a change. That is, the performance index for each processor is

determined and the incoming transaction is routed to the processor that satisfies the performance constraints. When the changes in performance index does not have a bearing on the routing choices, the transactions continue to be routed as previously indicated until the performance index demands a reshuffling of the transaction to processor mapping (col. 7 lines 38-42). In that sense, it would have been obvious to a person having ordinary skill in the art that the distribution mode is insensitive to the workload of the processors until the recomputation of the performance index reflects a degradation in response time.

13. As per claim 10, Ferguson teaches the invention as claimed, including the method of claim 9 wherein processes are round-robin distributed in the load insensitive workload distribution mode (col. 8 lines 12-18).

14. As per claim 13, Ferguson teaches the invention as claimed, including the method of claim 9 wherein step c) further comprises the step of re-directing incoming process requests to another engine (col. 6 lines 37-45).

15. As per claim 14, Ferguson teaches the invention as claimed, including the method of claim 9 wherein step c) further comprises the step of re-distributing queued processes to another engine (col. 7 line 65 - col. 8 line 24).

16. As per claims 15-16, Ferguson teaches the invention as claimed, including the method of claim 9 wherein step c) further comprises the step of identifying and prioritizing a source engine

for distributing workload from based on a maximum differential workload (col. 5 lines 43-47; col. 6 lines 36-45).

17. As per claim 17, Ferguson teaches the invention as claimed, including a method of distributing workload in a workflow management system comprising the steps of:

- a) switching from a load insensitive mode to a load sensitive workload distribution mode for distributing processes when a maximum differential load index exceeds a first pre-determined threshold, T1 (col. 6 lines 16-64; col. 7 lines 15-45); and
- b) switching from the load sensitive mode to the load insensitive workload distribution mode for distributing processes when the maximum differential load index is less than a second pre-determined threshold, T2 (col. 6 lines 16-64; col. 7 lines 15-45).

18. Although Ferguson does not explicitly discuss load-sensitive or load-insensitive modes, this issue is addressed above in numbered paragraph 12. Instead, Ferguson only changes routing decisions when the differential load index ceases to satisfy the system constraints. Rather than changing “modes,” Ferguson switches the routing decisions when the differential load indicates that response times are not meeting goals.

19. As per claims 18-19, Ferguson teaches the invention as claimed, including the method of claim 17 wherein  $T1=T2$  or  $T1>T2$  (col. 6 lines 36-40; col. 7 lines 20-35).

20. As per claim 23, Ferguson teaches the invention as claimed, including a workflow management system for implementing the method of claims 9 and 17 (Fig. 1).

*Response to Arguments*

21. **Applicant's arguments with respect to claims 9-10, 13-19, and 22-23 have been considered but are moot in view of the new grounds of rejection.**

22. **Applicant's arguments with respect to claims 1-2 and 5-8 have been fully considered but they are not persuasive.**

23. Applicant argues that Ferguson does not teach a calibration mode during which plural instantiations of a test process identify load index parameters. Examiner respectfully disagrees, in that Ferguson teaches a method of updating the load index parameters of each processor by way of an update algorithm that necessarily must be encapsulated within some sort of system process. The disclosed step of updating the performance index is the same as operating in a calibration mode.

*Allowable Subject Matter*

24. **Claims 3-4, 11-12, 20-21, and 24-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

*Conclusion*

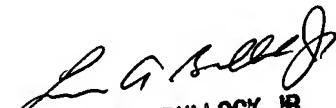
25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed J. Ali whose telephone number is (571) 272-3769. The examiner can normally be reached on Mon-Fri 8-5:30, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai T. An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Syed Ali  
February 1, 2006



LEWIS A. BULLOCK, JR.  
PRIMARY EXAMINER